

10/009318

Attorney Docket No. : 20496-312

**IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)**

Applicant	:	Heinrich FEICHTINGER, et al.	<b>PRELIMINARY AMENDMENT</b>
Int'l Appl. No.	:	PCT/EP01/01671	
Int'l. Filing Date	:	February 15, 2001	
Priority Date	:	March 16, 2000	
Title of the Invention	:	METHOD FOR CONTROLLING AND ADJUSTING THE CONCENTRATION...	

Assistant Commissioner for Patents  
Box PCT  
Washington, DC 20231

Express Mail Mailing Label No. :

EL070211562US

Sir:

Prior to examination, please amend the above-identified patent application as follows:

**IN THE SPECIFICATION:**

Page 1, after the title, please insert --BACKGROUND OF THE INVENTION--.

Page 4, before the paragraph which begins with "It is thus the object," please insert --SUMMARY OF THE INVENTION--.

Page 8, before the paragraph, which begins with "Advantageous embodiments," please insert -- BRIEF DESCRIPTION OF THE DRAWINGS--.

Page 8, before the paragraph, which begins with "Fig. 1 shows," please insert --DETAILED DESCRIPTION OF THE INVENTION--.

**IN THE CLAIMS:**

Please amend claims 3-11, 14, 16, 17, 19, 20, and 22 to remove their multiple dependencies. A “marked-up” version of the amended claims is enclosed herewith in accordance with 37 C.F.R. 1.121 (c)(1).

- 3. (Amended) A method according to claim 1, characterised in that in addition to the gaseous alloying constituent, inert gas is added by metering.
- 4. (Amended) A method according to claim 1, characterised in that metered addition of the gaseous alloying constituent takes place irrespective of the inert gas.
- 5. (Amended) A method according to claim 1, characterised in that metered addition of the gaseous component takes place by means of solid particles which contain the gaseous component in a bound form, with said particles when exposed to heat, releasing the gaseous alloying constituent at a known concentration.
- 6. (Amended) A method according to claim 1, characterised in that the mean gas temperature is determined by measuring the temperature of the atmosphere contained in the vessel at least in one location, and on the basis of this measured temperature taking into account a previously empirically determined correlation, the mean gas temperature is determined.
- 7. (Amended) A method according to claim 1, characterised in that the mean gas temperature is measured by means of a rise in pressure which is triggered in the vessel by a temporary addition of a known inert gas volume.
- 8. (Amended) A method according to claim 1, characterised in that the gaseous component is nitrogen.

- 9. (Amended) A method according to claim 1, characterised in that the inert gas is argon.
- 10. (Amended) A method according to claim 1, characterised in that the metal alloy is a steel alloy.
- 11. (Amended) A method according to claim 5, characterised in that the solid particles are added by metering in the form of powder or granulate.
- 14. (Amended) A method according to claim 1, characterised in that the metal alloy is placed in the vessel in solid form and in that a remelting process is carried out in the vessel.
- 16. (Amended) A method according to claim 14, characterised in that the volume of the metal alloy remelted per unit of time is registered and taken into account when determining the quantity of the gaseous alloying constituent added by metering.
- 17. (Amended) A device for implementing the method according to claim 1, comprising
- a vessel for containing an atmosphere and a metal alloy at overpressure;
  - a heating device by means of which a melt can be generated from the metal alloy;
  - a metering device for feeding into the vessel an alloying constituent which in its normal state is gaseous.
  - a metering device for feeding an inert gas into the vessel;
  - a pressure sensor for registering the total pressure of the atmosphere contained in the vessel;

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- a temperature sensor for registering the temperature of the atmosphere in at least one location;
  - a device for determining the concentrations of the inert gas and the gaseous alloying constituent in the atmosphere contained in the vessel;
  - an evaluation unit which evaluates the total pressure, the temperature of the atmosphere and the concentrations of the inert gas and the gaseous alloying constituent; and
  - a control device which controls the metering of the inert gas and the gaseous alloying constituent depending on the result of the evaluation of the evaluation device.
- 19. (Amended) A device according to claim 17, characterised in that the heating device is designed in the way of an induction furnace or an electric arc furnace.
- 20. (Amended) A device according to claim 17, characterised in that a metering device for feeding solid particles into the vessel is provided.
- 22. (Amended) A device according to claim 17, characterised in that a measuring device is provided which registers the melted volume of the metal alloy contained in the vessel, and in that during its evaluation, the evaluation device takes into account the value determined by the measuring device.

**IN THE ABSTRACT:**

Please delete the last line, which starts with "Publication is to be."

# REMARKS

Amendments are being made to claims 3-11, 14, 16,17, 19, 20, and 22 to remove their multiple dependencies.

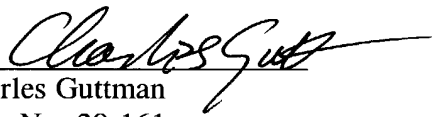
Please proceed to examine the application as amended herein.

Respectfully submitted,  
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Date: November 13, 2001

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**Amended Claims - Marked-Up Version**

3. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that in addition to the gaseous alloying constituent, inert gas is added by metering.
4. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that metered addition of the gaseous alloying constituent takes place irrespective of the inert gas.
5. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that metered addition of the gaseous component takes place by means of solid particles which contain the gaseous component in a bound form, with said particles when exposed to heat, releasing the gaseous alloying constituent at a known concentration.
6. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that the mean gas temperature is determined by measuring the temperature of the atmosphere contained in the vessel at least in one location, and on the basis of this measured temperature taking into account a previously empirically determined correlation, the mean gas temperature is determined.
7. (Amended) A method according to [one of claims 1 to 5] claim 1, characterised in that the mean gas temperature is measured by means of a rise in pressure which is triggered in the vessel by a temporary addition of a known inert gas volume.
8. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that the gaseous component is nitrogen.
9. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that the inert gas is argon.
10. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that the metal alloy is a steel alloy.

11. (Amended) A method according to [one of claims 5 to 10] claim 5, characterised in that the solid particles are added by metering in the form of powder or granulate.
14. (Amended) A method according to [one of the preceding claims] claim 1, characterised in that the metal alloy is placed in the vessel in solid form and in that a remelting process is carried out in the vessel.
16. (Amended) A method according to claim 14 [or 15], characterised in that the volume of the metal alloy remelted per unit of time is registered and taken into account when determining the quantity of the gaseous alloying constituent added by metering.
17. (Amended) A device for implementing the method according to [one of claims 1 to 16] claim 1, comprising
  - a vessel for containing an atmosphere and a metal alloy at overpressure;
  - a heating device by means of which a melt can be generated from the metal alloy;
  - a metering device for feeding into the vessel an alloying constituent which in its normal state is gaseous.
  - a metering device for feeding an inert gas into the vessel;
  - a pressure sensor for registering the total pressure of the atmosphere contained in the vessel;
  - a temperature sensor for registering the temperature of the atmosphere in at least one location;

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- a device for determining the concentrations of the inert gas and the gaseous alloying constituent in the atmosphere contained in the vessel;
  - an evaluation unit which evaluates the total pressure, the temperature of the atmosphere and the concentrations of the inert gas and the gaseous alloying constituent; and
  - a control device which controls the metering of the inert gas and the gaseous alloying constituent depending on the result of the evaluation of the evaluation device.
19. (Amended) A device according to [one of claims 17 or 18] claim 17, characterised in that the heating device is designed in the way of an induction furnace or an electric arc furnace.
20. (Amended) A device according to [one of claims 17 to 19] claim 17, characterised in that a metering device for feeding solid particles into the vessel is provided.
22. (Amended) A device according to [one of of claims 17 to 21] claim 17, characterised in that a measuring device is provided which registers the melted volume of the metal alloy contained in the vessel, and in that during its evaluation, the evaluation device takes into account the value determined by the measuring device.